UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,433	07/21/2003	Won-Hee Choe	030681-536	4965

21839 7590 11/29/2004

BURNS DOANE SWECKER & MATHIS L L P
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

EXAMINER	
LUU, MATTHEW	

ART UNIT	PAPER NUMBER
2672	

DATE MAILED: 11/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/622,433	CHOE ET AL.	
	Examiner	Art Unit	
	LUU MATTHEW	2672	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5,7-9 and 13* is/are rejected.

7)☒ Claim(s) *2-4,6,10-12 and 14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *July 21, 2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 4 is objected to because of the following informalities: line 3, change the word [[to]] to the word from. Line 4, delete the comma mark [[,]]. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 5, 7-9, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Messing et al (US 2004/0061710).

Regarding claim 1, Messing et al disclose (Figs. 1 and 2) a method for rendering a color image on a display apparatus (6) in which a pixel expressing an input image (4) is formed with delta-structured sub-pixels (R,G,B) (16), the method comprising:

(a) filtering step is used to make the resolution of the input image (higher-resolution image 4) correspond to the resolution of the display (lower-resolution triad display 6) (page 1, section [0003], lines 1-5);

(b) obtaining a representative value (the R,G,B values) of a sub-pixel (16) of the display apparatus (6) corresponding to a consideration area (10,12,14) which is an area processed by the filter in the input image (page 1, section [0003], lines 5-9); and

c) rendering the filtered sub-pixel value on the display apparatus (page 1, section [0003], and lines 5-9).

The only difference between the disclosure of Mess et al and the claimed invention is that the claim requires a "scaling filter".

However, it is obvious to a person of ordinary skill in the art to recognize that, because the input image resolution is higher than the display apparatus resolution, a number of N input image pixels will be scaled or reduced correspondingly to a single display pixel. Consequently, in displaying an input image on such a color liquid crystal display (LCD), it has been known to process the image by associating N image picture pixels with each display pixel. Therefore, the resolution filter of the Messing et al display apparatus is nevertheless a scaling filter.

Regarding claim 5, Messing et al disclose (Figs. 1 and 2) a method for rendering a color image on a display apparatus (6) in which a pixel expressing an input image (4) is formed with delta-structured sub-pixels (R,G,B) (16), the method comprising:

(a) filtering step is used to make the resolution of the input image (higher-resolution image 4) correspond to the resolution of the display (lower-resolution triad display 6) (page 1, section [0003], lines 1-5);

(b) obtaining a representative value (the R,G,B values) of a sub-pixel (16) of the display apparatus (6) corresponding to a consideration area (10,12,14) which is an area processed by the filter in the input image (page 1, section [0003], lines 5-9);

c) obtaining the value of the sub-pixel based on the difference of pixels in the consideration area in the input image (page 1, section [0006], and lines 1-3. Furthermore, it is well known in the art the weighted averaging value is obtained by calculating the difference of the neighboring sub-pixels);

(d) performing gamma correction of the sub-pixel value (page 7, section [0078], Fig. 16); and

(e) rendering the gamma-adjusted sub-pixel value on the display apparatus (Fig. 16, RGB space converter 552, wherein the RGB gamma corrected image is output to the display).

The only difference between the disclosure of Mess et al and the claimed invention is that the claim requires a "scaling filter".

However, it is obvious to a person of ordinary skill in the art to recognize that, because the input image resolution is higher than the display apparatus resolution, a number of N input image pixels will be scaled or reduced correspondingly to a single display pixel. Consequently, in displaying an input image on such a color liquid crystal display (LCD), it has been known to process the image by associating N image picture pixels with each display pixel. Therefore, the resolution filter of the Messing et al display apparatus is nevertheless a scaling filter.

Regarding claim 7, Mess et al further disclose (Fig. 16) the value of the output sub-pixel is corrected based on the gamma value of individual R,G,B components.

Regarding claim 8, which is an apparatus claim of claim 5, please note the rejection as set forth above with respect to claim 5.

Regarding claims 9 and 13, Mess et al further teach a computer program for the method of claim 1. Page 3, section [0042], lines 1-2, "Elements of the system may be embodied in hardware, firmware, and/or software".

Allowable Subject Matter

Claims 2-4, 6, 10-11, 12, and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

-Hellen Brown Elliott et al (US 2003/0103058) disclose methods and system for sub-pixel rendering with gamma adjustment.

-Barilovits et al (Us 2002/0145610) disclose a video processing engine that is an overlay filter scaler.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUU MATTHEW whose telephone number is (703) 305-4850. The examiner can normally be reached on 9 hrs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, RAZAVI MICHAEL can be reached on (703) 305-4713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. Luu

MATTHEW LUU
PRIMARY EXAMINER